"DRAFT"

Aluminum Research - Tucson

Project Prospectus RTA No. XXX

Requester/Location:

Tom Payne, Columbia Falls

Title:

Reduce Iron and Silicon Levels in Crushed Bath & Basement Sweepings

Background:

Through normal operations in Columbia Falls, quantities of bath and alumina end up in the pot room basement. On an annual basis this amounts to approximately 2500 tons of bath and 7500 tons of ore with a combined value in excess of $3MM.

To recover these materials, the basements are manually cleaned up each year. Because other tramp materials such as brick, nuts, bolts, welding rods, wood, etc. also end up in the basement, the recovered or and bath, when recycled back to the pots, signficantly contributes to iron and silicon contamination of pot metal. The present recover system is outlined in a letter from N. Berube to D. R. Krause, October 28, attached as Appendix I.

At Columbia Falls a pot is classified as pure metal if the iron level less than or equal to 0.19% iron. At present (2/10/81) hot metal averages 0.26% iron and 0.09% silicon with approximately 20% of the pots in the pure metal category.

To meet project market demand, the level of contamination experienced is not acceptable and a method of reducing iron and silicon levels in the recovered bath and ore is required.

Objective:

- Develop and test a proposal to reduce tramp contaminants in recycled bath and alumina to acceptable levels.

Scope:

Tucson Research has received samples designated as follows:

Sample A - Basement Sweepings

Sample B - Crushed Bath

Sample C - Basement Bath & Debris

We would propose to proceed in the following manner:

- Analyze and characterize received samples
- Conceptually postulate possible treatment alternatives

  In addition to significantly reducing iron and silicon levels, it would be desirable to separate the ore and bath as much as possible, however, bath/ore cross contamination is acceptable.
- Identify most promising alternatives in consultation with Columbia Falls
- Design and execute a bench scale experimental program to verify the initial proposal
- Report results to Columbia Falls
- Determine further action as appropriate

It is estimated that this project as outlined would require of the order of 2 to 4 man months of effort.

Justification:

I don't have all necessary information at this point to fill in the section on justification, however, if available, it should contain the following points:

- Contrast projected hot metal purity requirements with present plant production
- Identify the value of recycled material
- Determine priority to be assigned to the project.